

Docket No.: 7724-NES

## OFFICIAL

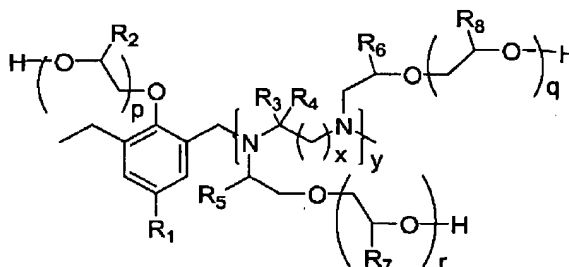
## CLAIMS

1. (original) An alkoxyated alkylphenol-formaldehyde-diamine polymer prepared by reacting 1 molar equivalent of one or more diamines, 1 to about 10 molar equivalents of one or more alkylphenols and about 2 to about 14 molar equivalents of formaldehyde to form an alkylphenol-formaldehyde-diamine polymer and then reacting the alkylphenol-formaldehyde-diamine polymer with about 5 to about 3,500 molar equivalents of one or more alkylene oxides.
2. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 1 wherein the alkylene oxides comprise ethylene oxide and propylene oxide.
3. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 2 wherein the ethylene oxide and propylene oxide are added in block fashion.
4. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 3 wherein the ethylene oxide and propylene oxide are added in the sequence ethylene oxide-propylene oxide.
5. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 3 wherein the ethylene oxide and propylene oxide are added in the sequence ethylene oxide-propylene oxide-ethylene oxide.
6. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 1 wherein the diamines are selected from the group consisting of ethylenediamine, triethylenetetramine, tetraethylenepentamine, pentaethylenhexamine, aminoethylpiperazine, 1,2-diaminocyclohexane, *o*-phenylenediamine and *p*-phenylenediamine.

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7. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 3 wherein the alkylphenol-formaldehyde-diamine polymer is reacted with about 650 to about 800 molar equivalents of alkylene oxide.
8. (currently amended) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 3 prepared by reacting about 1 molar equivalent of one or more alkylphenols, about 2 to about 7 molar equivalents of formaldehyde and about 1 molar equivalent of one or more diamines to form an alkylphenol-formaldehyde-diamine polymer and then reacting the alkylphenol-formaldehyde-diamine polymer with about 650 to about 800 molar equivalents of ~~one or more alkylene oxides~~ ethylene oxide and propylene oxide.
10. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 1 comprising 1 to about 12 repeating units of formula



wherein R<sub>1</sub> is C<sub>1</sub>-C<sub>18</sub> alkyl; R<sub>2</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub> and R<sub>8</sub> are independently selected at each occurrence from H and CH<sub>3</sub>; R<sub>3</sub> and R<sub>4</sub> are independently selected at each occurrence from H, C<sub>1</sub>-C<sub>3</sub> alkyl, aryl, hydroxy, alkoxy and halide; x is 1 to about 11; y is 1 to about 5; and p, q and r are independently about 5 to about 860.

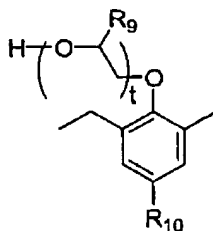
10. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 9 wherein R<sub>3</sub> and R<sub>4</sub> are H.

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11. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 9 wherein  $R_1$  is  $C_5$ - $C_{12}$  alkyl.

12. (original) The alkoxyated alkylphenol-formaldehyde-diamine polymer of claim 9 further comprising 1 to about 24 repeating units of formula



wherein  $R_9$  is independently selected at each occurrence from H and  $CH_3$ ,  $R_{10}$  is  $C_1$ - $C_{18}$  alkyl and  $t$  is 0 to about 830.

13. (original) A demulsifier composition for resolving water-in-oil emulsions comprising one or more alkoxyated alkylphenol-formaldehyde-diamine polymers according to claim 1.

14. (original) A method of resolving a water-in-oil emulsion comprising adding to the emulsion an effective demulsifying amount of one or more alkoxyated alkylphenol-formaldehyde-diamine polymers according to claim 1.

15. (original) The method of claim 14 wherein the water-in-oil emulsion is a crude oil emulsion.

16. (original) The method of claim 14 wherein the crude oil emulsion is a refinery desalting emulsion.

17. (original) The method of claim 14 wherein the crude oil emulsion is a crude oil production emulsion.